

Serial No. 10/727,578  
Docket No. YOR920030072US1 (YOR.440)

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**AMENDMENTS TO THE CLAIMS:**

1. (Currently amended) A predictive model method, comprising:

receiving an first input data into an initial model to develop an initial model output; and  
receiving ~~both of said~~ second input data and said initial model output as inputs data into a  
first ~~transform/regression~~ boosting stage to develop an improvement to said initial model output,  
said second input data comprising one of said first input data, data not included in said first input  
data, and a combination thereof.

2. (Currently amended) The method of claim 1, further comprising:

providing an output of said first ~~transform/regression~~ boosting stage as an ~~first of two~~  
inputs into a second ~~transform/regression~~ boosting stage,

~~wherein a second of said two inputs comprises said input data into said initial model.~~

3. (Currently amended) The method of claim 2 1, further comprising:

successively providing, for one or more additional boosting stages, an output of a  
preceding ~~transform/regression~~ boosting stage as an ~~first of two~~ inputs into a next  
~~transform/regression~~ succeeding boosting stage,

~~wherein a second of said two inputs comprises said input data into said initial model.~~

4. (Currently amended) The method of claim 1, wherein said first ~~transform/regression~~ boosting  
stage comprises a transform/regression stage that comprises:

a feature transform stage receiving said second input data and said initial model output;

Serial No. 10/727,578

Docket No. YOR920030072US1 (YOR.440)

a linear regression stage receiving an output of said feature transform stage; and  
an output summing node receiving as inputs said initial model output and an output of  
said linear regression stage, an output of said output summing node comprising a first boosting  
stage model output.

5. (Currently amended) The method of claim 4, further comprising:

successively providing, for one or more transform/regression stages, an output of a  
preceding transform/regression stage as an ~~first of two~~ inputs into a next succeeding  
transform/regression stage;

~~wherein a second of said two inputs comprises said input data into said initial model.~~

6. (Currently amended) The method of claim 5, wherein for each at least one said one or more  
transform/regression stages, a third input into said next succeeding transform/regression stage  
comprises an output of said linear regression stage of said a preceding transform/regression  
stage; ~~and, for each said transform/regression stage, an output of said linear regression stage for~~  
~~said linear regression stage is carried forward to be an input into all successive~~  
~~transform/regression stages.~~

7. (Currently amended) The method of claim 5, further comprising:

avoiding an overfitting in said predictive model by determining when a successive  
transform/regression stage does not add to a performance of said predictive model.

Serial No. 10/727,578

Docket No. YOR920030072US1 (YOR.440)

8. (Original) The method of claim 7, wherein said determining of performance degradation comprises a holdout method, said holdout method comprising:

dividing an available data into a training set and a holdout data set;

using said training set to estimate a model parameter and to construct an alternative model structure; and

using said holdout data set to make a selection among said alternative model structure.

9. (Original) The method of claim 7, wherein said determining of performance degradation comprises a cross-validation method, said cross-validation method comprising:

dividing an available data into a plurality of folds of data; and

successively, using each said fold as a holdout data set, and a remaining data not in said fold is used as a training data set to estimate model parameters and to construct alternative model structures and said training data set is used to make a selection among said alternative model structures.

10. (Currently amended) A predictive modeling method, comprising:

establishing an initial model module to instance an initial model; and

establishing a boosting stage model module to instance a boosting stage model for each of a plurality of one or more successive boosting stages,

wherein each at least one instanced boosting stage model receives, as an input, an input data and an output from at least one of said initial model and a preceding boosting stage model, ~~and each said instanced stage model provides a stage model output that is used as an input into any next successive instanced stage model.~~

Serial No. 10/727,578

Docket No. YOR920030072US1 (YOR.440)

11. (Currently amended) The method of claim 10, wherein ~~each~~ at least one said boosting stage model feeds forward a second output as another input into ~~all~~ at least one succeeding boosting stage models.-

12. (Currently amended) The method of claim 10, further comprising:

instantiating said initial model;

~~instantiating a first stage model that receives an output data from said initial model as an input data and to provide a first stage model output;~~

~~successively instantiating one or more of said boosting stage models to be successive boosting stage models, wherein a first successive stage model receives said first stage output data as an input data and provides an output data to be an input data to a second successive stage model, if any, and each successive stage model, if any, receives a stage output data from an immediately preceding successive stage model and each successive stage model provides a stage output data to become an input data to a next successive stage model~~ at least one said boosting stage model receives, as input, an output from at least one of said initial model and a preceding boosting stage model; and

~~providing an input data as inputs to said initial model, said first stage, and each said successive stage model; and~~

~~for each successive boosting stage model, providing an input data as input to said successive boosting stage model.~~

Serial No. 10/727,578  
Docket No. YOR920030072US1 (YOR.440)

13. (Currently amended) The method of claim 12, further comprising:

determining when an additional successive boosting stage would not add to a performance of the predictive model.

14. (Original) The method of claim 13, wherein said determining of performance degradation comprises a holdout method, said holdout method comprising:

dividing an available data into a training set and a holdout data set;

using said training set to estimate a model parameter and to construct alternative model structures; and

using said holdout data set to make a selection among said alternative model structures.

15. (Original) The method of claim 13, wherein said determining of performance degradation comprises a cross-validation method, said cross-validation method comprising:

dividing an available data into a plurality of folds of data;

successively, using each said fold as a holdout data set, and a remaining data not in said fold is used as a training data set to estimate model parameters and to construct alternative model structures and said training data set is used to make a selection among said alternative model structures.

16. (Currently amended) The method of claim 10, wherein said boosting stage model comprises:

a first data input port;

a second data input port;

Serial No. 10/727,578

Docket No. YOR920030072US1 (YOR.440)

a feature transform stage receiving data from said first data input port and said second data input port;

a linear regression stage receiving an output from said feature transform stage;

a summing node receiving data from said first data input port and output data from said linear regression stage; and

an output port receiving data outputted from said summing node.

17. (Currently amended) The method of claim 16, wherein said boosting stage model further comprises:

a second output port to provide said output data from said linear regression stage to be a second output from said boosting stage model; and

one or more input ports to receive data from said second output port of preceding boosting stages to be input data into said feature transform stage.

18. (Currently amended) An apparatus to perform a predictive modeling method, said apparatus comprising:

an initial model module to instance an initial model; and

a boosting stage model module to instance a boosting stage model for each of a plurality of one or more successive boosting stages,

wherein each at least one said boosting stage model receives a data input and an input from an immediately preceding boosting stage model and provides an output to a next succeeding stage.

Serial No. 10/727,578

Docket No. YOR920030072US1 (YOR.440)

19. (Currently amended) The apparatus of claim 18, further comprising:

a controller to cause said initial model and each of ~~a plurality of~~ one or more said successive boosting stage models to be instanced and to interconnect said initial model and said plurality of successive boosting stage models; and

a graphic user interface to allow a user to control said controller and said predictive modeling method, to input data into said initial model, and to one of display and print to one of a printer, a data file, and an application program the output of a final one of said successive boosting stage models.

20. (Currently amended) A signal-bearing medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a predictive modeling method, said instructions comprising:

an initial model module to instance an initial model; and

a boosting stage model module to instance a boosting stage model for each of ~~a plurality of~~ one or more successive boosting stages,

wherein ~~each~~ at least one instanced boosting stage model receives, as ~~an~~ input, a data input and an output from at least one of said initial model and a preceding boosting stage model; and ~~each said instanced stage model provides a stage model output that is used as an input into a next successive instanced stage model.~~

21. (Currently amended) The signal-bearing medium of claim 20, wherein said instructions further comprise:

Serial No. 10/727,578

Docket No. YOR920030072US1 (YOR.440)

causing said initial model and each of ~~a plurality of~~ one or more said successive boosting stage models to be instanced and to appropriately interconnect said initial model and said ~~plurality of~~ successive boosting stage models;

allowing a user to control said controller and said predictive modeling method, to input data into said initial model, and to one of display and print to one of a printer, a data file, and an application program the output of a final one of said successive boosting stage models;

receiving input data; and

allowing an output data of said predictive modeling method to be provided as output data.

22. (Currently amended) A method of providing a service, said method comprising at least one of:

providing an execution of a predictive modeling method, wherein said predictive modeling method comprises:

establishing an initial model module to instance an initial model; and

establishing a boosting stage model module to instance a boosting stage model for each of ~~a plurality of~~ one or more successive boosting stages, wherein ~~each~~ at least one instanced boosting stage model receives, as an input, an input data and an output from at least one of said initial model or a preceding boosting stage model, ~~and each said instanced stage model provides a stage model output that is used as an input into a next successive instanced stage model.~~

23-24. (Canceled)



Serial No. 10/727,578  
Docket No. YOR920030072US1 (YOR.440)

25. (Currently amended) A method of determining performance degradation in an iterative predictive modeling, said method comprising:

dividing an available data into a plurality of folds of data;

for each said fold, instancing an iterative predictive modeling method and associating it with said fold;

successively, using each said fold within the iterative predictive modeling method associated with that fold as a holdout data set, and a remaining data not in said fold is used as a training data set to estimate model parameters, and to construct alternative model structures and said training data set is used to make a selection among said alternative model structures.

26. (Original) A method for deploying computing infrastructure, comprising integrating computer-readable code into a computing system, wherein the code in combination with the computing system is capable of performing the method of claim 1.